WHAT IS CLAIMED IS:

Sub A1

1. A radio receiver comprising:

a gain controlling means for controlling a gain of the radio receiver;

an electric field intensity detecting means for detecting an electric field intensity of a received signal;

an error rate measuring means for measuring an error rate of the received signal;

a threshold setting means for setting a threshold of electric field intensity level to start a gain control operation of the gain controlling means in response to a measured result of the error rate measuring means; and

a first controlling means for causing the gain controlling means to start the gain control operation when the electric field intensity detected by the electric field intensity detecting means reaches thethreshold of electric field intensity level which starts the gain control operation.

2. A radio receiver comprising:

a gain controlling means for controlling a gain of the radio receiver;

an error rate measuring means for measuring an error rate of the received signal;

a gain control amount setting means for setting a gain control amount of the gain controlling means in response to a measured result of the error rate measuring means; and

a second controlling means for causing the gain controlling means to change a gain in response to the gain control amount.

SUB A1

3. A radio receiver for receiving a signal having a signal format that is transmitted while changing transmission conditions into two types or more, comprising:

a gain controlling means for controlling a gain of the radio receiver;

an electric field intensity detecting means for detecting an electric field intensity of a received signal;

a threshold setting means for setting a threshold of electric field intensity level to start a gain control operation of the gain controlling means in response to a transmission condition of the signal; and

a first controlling means for causing the gain controlling means to start the gain control operation when the electric field intensity detected by the electric field intensity detecting means reaches thethreshold of electric field intensity level which starts the gain control operation.

4. A radio receiver for receiving a signal having a signal format that is transmitted while changing transmission conditions into two types or more, comprising:

a gain controlling means for controlling a gain of the radio receiver;

a gain control amount setting means for setting a gain control amount of the gain controlling means in response to a transmission condition of the signal; and

a second controlling means for causing the gain controlling means to change a gain in response to the gain control amount.

5. A radio receiver according to any one of claims 1, 2, 3 or 4, wherein the gain controlling means is a step-wise gain control type which changes the gain by a predetermined amount when a signal level of the received signal exceeds a predetermined level.

6. A radio receiver according to any one of claims 1 or 3, wherein the gain controlling means is a continuous gain control type which changes the gain in response to a signal level of the received signal.

7. A radio receiver according to claim 1, wherein the threshold setting means decides a change direction and/or a change amount of the thereshold of the electric intensity level in a succeeding reception based on a measured result by the error rate measuring means in a present reception and a measured result by the error rate measuring means in a preceding reception.

8. A radio receiver according to claim 1, wherein the threshold setting means decides a change direction and/or a change amount of the threshold of the electric field intensity level in a succeeding reception based on a measured result by the error rate measuring means in a present reception, a measured result by the error rate measuring means in a preceding reception, the threshold of electric field intensity level set in a present reception, and a set value of the threshold of electric intensity level in the preceding reception.

9. A radio receiver according to any one of claims 1, 7 or 8, further comprising:

a threshold range setting means for setting an available set range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value.

10. A radio receiver according to any one of claims 1, 7 or 8, wherein the threshold setting means does not change a setting of the threshold of electric intensity level when the threshold of electric intensity level is more than the maximum value or is less than the minimum value of the available set range and a measured result by the error rate measuring means is less than a predetermined value.

11. A radio receiver according to any one of claims 7 or 8, further comprising:

a storing means for updating/holding the measured result by the error rate measuring means in the present reception as a measured result by the error rate measuring means in the preceding reception, updating/holding the threshold of electric intensity level set in the present reception as the set value of the threshold of electric intensity level in the preceding reception, and updating/ holding the threshold of electric intensity level set by the threshold setting means in the present reception as the threshold of electric intensity level set in a succeeding reception.

12. A radio receiver according to claim 2, wherein the gain control

amount setting means decides a change direction and/or a change amount of the gain control amount in a succeeding reception based on a measured result by the error rate measuring means in a present reception and a measured result by the error rate measuring means in a preceding reception.

13. A radio receiver according to claim 2, wherein the gain control amount setting means decides a change direction and/or a change amount of the gain control amount in a succeeding reception based on a measured result by the error rate measuring means in a present reception, a measured result by the error rate measuring means in a preceding reception, the gain control amount set in a present reception, and a set value of the gain control amount in the preceding reception.

14. A radio receiver according to any one of claims 2, 12 or 13, further comprising:

a gain control amount range setting means for setting an available set range of the gain control amount, which is defined by a maximum value and a minimum value.

15. A radio receiver according to any one of claims 2, 12, 13, wherein the gain control amount setting means does not change a setting of the gain control amount when the gain control amount is more than the maximum value or is less than the minimum value of the available set range and a measured result by the error rate measuring means is less than a predetermined value.

16. A radio receiver according to any one of claims 12 or 13,

further comprising:

a storing means for updating/holding the measured result by the error rate measuring means in the present reception as a measured result by the error rate measuring means in the preceding reception, updating/holding the gain control amount set in the present reception as the set value of the gain control amount in the preceding reception, and updating/holding the gain control amount set by the gain control amount setting means in the present reception as the gain control amount set in a succeeding reception.

17. A radio receiving method used for a radio receiver including a gain controlling means for controlling a gain of the radio receiver, an electric field intensity detecting means for detecting an electric field intensity of a received signal, and an error rate measuring means for measuring an error rate of the received signal, comprising:

a threshold setting step of setting a threshold of electric intensity level to start a gain control operation of the gain controlling means in response to a measured result of the error rate measuring means; and

a first controlling step of causing the gain controlling means to start the gain control operation when the electric field intensity detected by the electric field intensity detecting means reaches the threshold of electric intensity level.

18. A radio receiving method according to claim 17, further comprising:

a receiving step of performing a reception at the set threshold of electric intensity level;

an error rate measuring step of measuring the error rate in the receiving step by the error rate measuring means; and

wherein the threshold setting step decides a change direction and/or a change amount of the threshold of electric intensity level in a succeeding reception based on a measured result by the error rate measuring means in a present reception and a measured result by the error rate measuring means in a preceding reception.

19. A radio receiving method according to claim 17, further comprising:

a receiving step of performing a reception at the set threshold of electric intensity level;

an error rate measuring step of measuring the error rate in the receiving step by the error rate measuring means; and

wherein the threshold setting step decides a change direction and/or a change amount of the threshold of electric intensity level in a succeeding reception based on a measured result by the error rate measuring means in a present reception, a measured result by the error rate measuring means in a preceding reception, the threshold of electric intensity level set in a present reception, and a set value of the threshold of electric intensity level in the preceding reception.

20. A radio receiving method according to any one of claims 17, 18 or 19, further comprising:

a threshold range setting step of setting an available set range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value.

21. A radio receiving method according to any one of claims 17, 18 or 19, wherein the threshold setting step does not change a setting of

the threshold of electric intensity level when the threshold of electric intensity level is more than the maximum value or is less than the minimum value of the available set range and a measured result by the error rate measuring means is less than a predetermined value.

22. A radio receiving method according to any one of claims 18 or 19, further comprising:

a storing step of updating/holding the measured result by the error rate measuring means in the present reception as a measured result by the error rate measuring means in the preceding reception, updating/holding the threshold of electric intensity level set in the present reception as the set value of the threshold of electric intensity level in the preceding reception, and updating/holding the threshold of electric intensity level set by the threshold setting means in the present reception as the threshold of electric intensity level set in a succeeding reception.

23. A radio receiving method used for a radio receiver including a gain controlling means for controlling a gain of the radio receiver, and an error rate measuring means for measuring an error rate of the received signal, comprising:

a gain control amount setting step of setting a gain control amount of the gain controlling means in response to a measured result of the error rate measuring means; and

a second controlling step of causing the gain controlling means to change a gain in response to the gain control amount.

Sub A1

24. A radio receiving method according to claim 23, further comprising:

a receiving step of performing a reception at the set gain control amount;

an error rate measuring step of measuring the error rate in the receiving step by the error rate measuring means; and

wherein the gain control amount setting step decides a change direction and/or a change amount of the gain control amount in a succeeding reception based on a measured result by the error rate measuring means in a present reception and a measured result by the error rate measuring means in a preceding reception.

25. A radio receiving method according to claim 23, further comprising:

a receiving step of performing a reception at the set gain control amount;

an error rate measuring step of measuring the error rate in the receiving step by the error rate measuring means; and

wherein the gain control amount setting step decides a change direction and/or a change amount of the gain control amount in a succeeding reception based on a measured result by the error rate measuring means in a present reception, a measured result by the error rate measuring means in a preceding reception, the gain control amount set in a present reception, and a set value of the gain control amount in the preceding reception.

26. A radio receiving method according to any one of claims 23, 24 or 25, further comprising:

a gain control amount range setting step of setting an available set

range of the gain control amount, which is defined by a maximum value and a minimum value.

27. A radio receiving method according to any one of claims 23, 24 or 25, wherein the gain control amount setting step does not change a setting of the gain control amount when the gain control amount is more than the maximum value or is less than the minimum value of the available set range and a measured result by the error rate measuring means is less than a predetermined value.

28. A radio receiving method according to any one of claims 24, 25, further comprising:

a storing step of updating/holding the measured result by the error rate measuring means in the present reception as a measured result by the error rate measuring means in the preceding reception, updating/holding the gain control amount set in the present reception as the set value of the gain control amount in the preceding reception, and updating/ holding the gain control amount set by the gain control amount setting means in the present reception as the gain control amount set in a succeeding reception.

29. A radio receiving method used for a radio receiver which includes a gain controlling means for controlling a gain of the radio receiver and an electric field intensity detecting means for detecting an electric field intensity of a received signal and also receives a signal having a signal format that is transmitted while changing transmission conditions into two types or more, comprising:

a threshold setting step of setting a threshold of electric intensity level to start a gain control operation of the gain controlling means in response to a transmission condition of the signal; and

a first controlling step of causing the gain controlling means to start the gain control operation when the electric field intensity detected by the electric field intensity detecting means reaches the threshold of electric intensity level.

30. A radio receiving method used for a radio receiver which includes a gain controlling means for controlling a gain of the radio receiver and also receives a signal having a signal format that is transmitted while changing transmission conditions into two types or more, comprising:

a gain control amount setting step of setting a gain control amount of the gain controlling means in response to a transmission condition of the signal; and

a second controlling step of causing the gain controlling means to change a gain in response to the gain control amount.

31. A computer-readable recording medium for storing a program which causes a computer to execute a radio receiving method set forth in any one of claims 17, 18, 19, 23, 24, 25, 29 or 30.